

Linzer biol. Beitr.	46/2	1517-1524	19.12.2014
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Ichneumonidae (Hymenoptera) from Anatolia. I.

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Abstract: Faunistic data of 12 Ctenopelmatinae species from Turkey are reported. *Euryproctus arbustorum* HOLMGREN, *Euryproctus luteicornis* (GRAVENHORST), *Hadrodactylus larvatus* KRIECHBAUMER, *Lathrolestes* (*Lathrolestes*) *buccinator* (HOLMGREN) and *Phobetes atomator* (MÜLLER) marked in the text by asterisk are new records for Turkish fauna. A zoogeographic characterization for each species is proposed.

Key words: Ichneumonidae, Ctenopelmatinae, fauna, Turkey, new records, zoogeography.

Introduction

Ichneumonidae is the biggest hymenopteran family with 51 generally recognized subfamilies, 1579 genera and 24281 described species (YU et al. 2012). TOWNES (1969), estimated that there could be about 60 000 Ichneumonidae species in the world, but because of the poor knowledge of the tropical faunas the present investigators estimate that the size of the family could be higher than 100 000 (GAULD 1997). The known number of Ichneumonidae species increases rapidly in the world. Ichneumonids are parasitoids of immature holometabolous insects from orders such as Coleoptera, Diptera, Hymenoptera, Lepidoptera, Raphidioptera, Trichoptera and also non-insect (Chelicerata: Araneae) (TOWNES 1969, 1970; WAHL 1993).

The Ichneumonidae fauna of Turkey is not well studied. In the catalogue of KOLAROV (1995) 383 species were listed from Turkey. Later many authors (KOLAROV et al. 1997a,b; KOLAROV et al. 1999; KOLAROV et al. 2002; ÇORUH et al. 2002; KOLAROV & GÜRBÜZ 2004; GÜRBÜZ 2005; YURTCAN & BEYARSLAN 2005, 2006; ÇORUH & ÖZBEK 2008; RIEDEL et al. 2010; KOLAROV & ÇALMAŞUR 2011; etc.) have made contributions to the Turkish fauna. ÇORUH & GÜÇLÜ (2013) reported 983 species in 282 genera for Turkey Ichneumonidae fauna.

Not so far the Ctenopelmatinae has been mentioned as Scolobatinae (TOWNES 1969; WAHL 1993). The subfamily is easily recognized by the following characters: Body small to large (fore wing 2.9-22 mm long). Clypeus fairly flat, usually wide and short, usually separated from face by groove, the apical margin often blunt or rounded; mandible long and weakly narrowed; apex of protibia with tooth on dorsal margin; sternaulus of mesopleuron absent or short; metasomal segment 1 slender to very stout, with or without glymma, and with spiracle before or at the middle; metasoma usually

cylindrical or depressed, sometimes compressed; ovipositor barely extending beyond metasomal apex, the dorsal subapical notch present except when ovipositor is needle-like.

Ctenopelmatinae are koinobiont endoparasitoids of Symphyta and, rarely, Lepidoptera; oviposition is into the egg or larva, with emergence after the host cocoon is spun. Most species have a Holarctic distribution (WAHL 1993).

KOLAROV (1995) reported 26 species in 17 genera for Turkey Ctenopelmatinae fauna. With the below mentioned contributions (KOLAROV et al. 1997a; ÖZBEK et al. 2000; ÇORUH et al. 2002; GÜRBÜZ & AKSOYLAR 2005; RESHCHIKOV 2011; ÇORUH & ÖZBEK 2011; GÜZBÜZ et al. 2011) the numbers of Ctenopelmatinae fauna of Turkey reached to 36 species.

This study is based upon material of family Ichneumonidae collected from different localities of Anatolia in Turkey in 2013.

Material and methods

The collecting of insects was conducted in two different regions - the Black Sea Region (Rize, Trabzon and Ordu) and the Eastern Anatolia Region (Erzurum) (Fig. 1). "Rize, Trabzon and Ordu" are situated in Middle and Eastern Black Sea Region of Turkey. These areas have rainy every season. The highest rainfall in autumn, at least rain fall in spring these areas. While annual rainfall is 1000-1500 mm in Eastern Black Sea Region (Rize and Trabzon), annual rain fall is 1000-1200 mm in Middle Black Sea Region (Ordu). The average of snowy days is 18 days in the region and the average July temperature is 21-23°C. The natural vegetation is forest. The vegetation is broad-leaved forest in the lowlands. The vegetation is changed as altitude increases and seen mixed deciduous forests. Coniferous forests and alpine meadows seen very high places (2100-2300 m) (http 1). In this region, predominant vegetations are as follows:

Heracleum platytaenium BOISS., *Conyza canadensis* (L.) CRONQUIST., *Erigeron acer* L., *Erigeron annuus* (L.) PERS., *Equisetum palustre* L., *Geranium asphodeloides* BURM. FIL., *Geranium ibericum* CAV., *Daucus carota* L., *Geranium sylvaticum* L., *Pteridium aquilinum* (L.) KUHN, *Prunella vulgaris* L., *Salvia forskahlei* L., *Salvia verticillata* L., *Linum hypericifolium* SALISB., *Epilobium parviflorum* SCHREBER, *Plantago media* L., *Alopecurus myosuroides* HUDSON, *Cynodon dactylon* (L.) PERS., *Lolium temulentum* L., *Lolium perenne* L., *Sorghum halepense* (L.) PERS., *Digitaria sanguinalis* (L.) SCOP., *Paspalum dilatatum* POIRET, *Paspalum paspalodes* (MICHX.) SCRIBNER, *Seteria glauca* (L.) P. BEAUV., *Poa annua* L., *Poa trivialis* L., *Festuca pratensis* HUDSON, *Phleum phyleoides* (L.) KARSTEN, *Polygonum persicaria* L., *Anagallis arvensis* L., *Delphinium formosum* BOISS. & HUET, *Fragaria vesca* L., *Rubus discolor* WEIHE & NEES, *Rubus hirtus* WALDST. et KIT., *Galium verum* L., *Rhinanthus angustifolius* C.C. GMELIN, *Pedicularis comosa* L., *Corylus avellana* L., *Veronica gentianoides* VAHL. and *Urtica dioica* L.

Three species (*Euryproctus arbustorum*, *Euryproctus luteicornis* and *Phobetor atomator*) which are new records for the Turkish fauna were collected from İkizdere (Rize). İkizdere is situated in Eastern Black Sea Region of Turkey (40°42' N, 40° 36' E), covers an area from sea level to 570 m. a. s. l. The climate is typical of the Black Sea region.

Rain is falls all the time. There is snow on the high peaks and lots of glacial formation. This is hilly countryside inland from the Black Sea, forest-covered steep mountainside separated by narrow valleys, with areas of high pasture. There is broad-leaf forest at lower elevations and pine higher up. İkizdere has Anzer pasture and Ovit mountain (http 2).

"Erzurum" is situated in Eastern Anatolia Region of Turkey. The altitude of this region is higher than Black Sea region. The majority of this region has high altitude. Most plateaus are around 2000 m from sea level, and the mountainous regions beyond the plateaus are 3000 m and higher. Depression plains are located between the mountains and plateaus. The southern mountain ranges of Erzurum city, Palandoken Mountains, with the altitudes of 2200-3176 m. The topographic and climatic structures province has the opportunity of host rich and diverse fauna and flora (YILDIRIM & STRUMIA 2000). Climate in this region is terrestrial. That is, winters are long and hard; summer is very short and warm. Place in Kars and Erzurum is the number of days with snow is about 90 days. The average July temperature is 17-19°C. Annual rainfall is 500-600 mm. The natural vegetation is usually steppe looks like. While forests consist of yellow pines and coniferous trees in the northern part of the region, in other sections, consist of oak. Where the high-end segments of the forest, starts alpine meadows are covered with grassland (http 3). In this region, predominant vegetations are as follows:

Acer monspessulanum L. *Achillea biebersteinii* AFAN., *A. millefolium* L., *Antemisia cretica* L., *A. tinctoria* L., *Arabis caucasica* WILLD., *Astragalus christianus* L., *Carum carvi* L., *Cirsium arvense* (L.) SCOP., *Coronilla orientalis* MILL., *Cotinus coggyria* SCOP., *Daucus carota* L., *Equisetum ramosissimum* DESF., *Ephedra major* HOST, *Eryngium billardieri* DELAR., *Euphorbia virgata* WALDST. & KIT., *Ferula communis* L., *F. orientalis* L., *Galium incanum* SM., *Gypsophila bicolor* (FREYN & SINT.), *Hypericum hyssopifolium* CHAIX, *H. scabrum* L., *Juniperus communis* L., *Linum mucronatum* BERTOL., *Papaver orientale* L., *Pimpinella corymbosa* BOISS., *P. tragium* VILL., *Ranunculus cuneatus* BOISS., *Rhus coriaria* L., *Seseli libanotis* (L.) W. KOCH, *Trifolium ambiguum* M. BIEB., *T. hybridum* L., *Sisymbrium elatum* K. KOCH, *Tanacetum punctatum* (BOISS. & NOE), *Veronica orientalis* MILLER, *Ziziphora clinopodioides* LAM. and *Zosima absinthifolia* (WENT.).

Two species (*Hadrodactylus larvatus* and *Lathrolestes* (*Lathrolestes*) *buccinator*) which are new records for the Turkish fauna were collected from Gelinkaya (Erzurum). Gelinkaya which is situated in Eastern Anatolia Region of Turkey (40°02' N, 40°91' E), covers an area from sea level to 1790 m.a.s.l. Vegetation is steppe and the topographic structure is mountainous. The climate is terrestrial. However, Black Sea climatic features are also seen. That is, winters are milder due to the geographical location (http 3).

Materials were collected by sweeping on flowering plants in the different localities Rize, Trabzon and Ordu (Black Sea Region) and Erzurum (Eastern Anatolia Region) in Turkey, during 2013. Collected samples were transferred into a handmade aspirator and were killed with ethyl acetate. Conventional standard method (ÇORUH & ÖZBEK, 2008) was used for preparation of the samples. Material is preserved in Collection of Plovdiv University (Bulgaria). Plant specimens were collected by hand and were pressed and they were deposited at the Herbarium of Plant Protection Department (Erzurum). In the present paper unpublished data for 12 species from subfamily Ctenopelmatinae from Anatolia are listed. New records of species are marked by an asterisk (*). General distributions of the species were taken from YU et al. (2012).

Results

List of the species

In total 12 species in 9 genera of Ctenopelmatinae were determined. The species list is given below.

****Euryproctus arbustorum* HOLMGREN, 1857**

Material examined: Rize, Ikizdere, 24.06.2013, 2♂♂.

Distribution: Norway, Sweden, Finland, Poland, Austria, Ukraine, Belarus and Russia – Pskov oblast.

****Euryproctus luteicornis* (GRAVENHORST, 1829)**

Material examined: Rize, Ikizdere, 24.06.2013, 1♀.

Distribution: Sweden, Finland, Ireland, United Kingdom, France, Germany, Switzerland, Poland, late Czechoslovakia, Austria, Hungary, Lithuania and Georgia.

***Euryproctus nemoralis* (GEOFFROY, 1785)**

Material examined: Rize, Ikizdere, 24.06.2013, 1♂.

Distribution: Europe, Azerbaijan, Turkey and Russia (European part and Siberia).

****Hadrodactylus larvatus* KRIECHBAUMER, 1891**

Material examined: Erzurum, Gelinkaya, 19.06.2013, 1♀.

Distribution: Spain, Finland, Luxemburg, Italy, Germany, Austria, late Czechoslovakia, Hungary, Poland, Lithuania, Ukraine, Belarus, Azerbaijan, European Russia and Siberia.

****Lathrolestes (Lathrolestes) buccinator* (HOLMGREN, 1857)**

Material examined: Erzurum, Gelinkaya, 19.06.2013, 1♀.

Distribution: Europe, Azerbaijan, Armenia, Afghanistan, Siberia and Pacific coast of Russia.

***Mesoleptidea cingulata* (GRAVENHORST, 1829)**

Material examined: Trabzon, Çaykara, Uzungöl, 21.06.2013, 1♂.

Distribution: Europe, Turkey and China – Liaoning.

***Mesoleptidea* sp.**

Material examined: Rize, Ikizdere, 24.06.2013, 1♀.

***Perilissus spilonotus* (STEPHENS, 1835)**

M a t e r i a l e x a m i n e d : Rize, Ikizdere, 24.06.2013, 1 ♂.

D i s t r i b u t i o n : Europe and Turkey.

***Perilissus variator* (MÜLLER, 1776)**

M a t e r i a l e x a m i n e d : Erzurum, Gelinkaya, 19.06.2013, 1 ♂.

D i s t r i b u t i o n : Palaearctic region.

****Phobetres atomator* (MÜLLER, 1776)**

M a t e r i a l e x a m i n e d : Rize, Ikizdere, 24.06.2013, 1 ♀.

D i s t r i b u t i o n : Europe and Siberia - Yakutia.

***Phobetres leptocerus* (GRAVENHORST, 1820)**

M a t e r i a l e x a m i n e d : Rize, Ikizdere, 24.06.2013, 1 ♂.

D i s t r i b u t i o n : Europe, Turkey and Siberia – Chita oblast of Russia.

***Rhorus* sp.**

M a t e r i a l e x a m i n e d : Rize, Ikizdere, 24.06.2013, 17 ♂ ♂.

***Scolobates auriculatus* (FABRICIUS, 1804)**

M a t e r i a l e x a m i n e d : Ordu, Gülyalı, 22.06.2013, 1 ♂.

D i s t r i b u t i o n : Holarctic and Oriental region.

***Xenoschesis (Polycinetis) ustulata* (DESVIGNES, 1856)**

M a t e r i a l e x a m i n e d : Rize, Ikizdere, 24.06.2013, 1 ♀.

D i s t r i b u t i o n : Holarctic region.

Zoogeographic characterization

The zoogeographic characterisation follows mainly the chorotype classification of the Near East fauna, proposed by TAGLIANTI et al. (1999). After investigation of the recent geographic distribution of the species listed above, they can be divided into the following groups:

- (1) Species with range in Holarctic and Oriental region: *Scolobates auriculatus*.
- (2) Holarctic chorotypes: *Xenoschesis (Polycinetis) ustulata*.
- (3) Palaearctic ranges: *Mesoleptidea cingulata*, *Lathrolestes (Lathrolestes) buccinators* and *Perilissus variator*.
- (4) Sibero-European chorotypes: *Euryproctus nemoralis*, *Hadrodactylus larvatus*, *Phobetres atomator* and *Phobetres leptocerus*.

- (5) European chorotypes: *Euryproctus arbustorum*, *Euryproctus luteicornis* and *Perilissus spilonotus*.

Acknowledgements

The preparation of this article was supported by the Project Nr: BAP- 2012/234 and we are very thankful for it. We are indebted to Halil Çoruh (Erzurum) for collecting a few specimens.

Zusammenfassung

Vorliegende Arbeit berichtet über faunistische Daten von 12 Ctenopelmatinae-Arten (Hymenoptera, Ichneumonidae) aus der Türkei. Die Spezies *Euryproctus arbustorum* HOLMGREN, *Euryproctus luteicornis* (GRAVENHORST), *Hadrodactylus larvatus* KRIECHBAUMER, *Lathrolestes* (*Lathrolestes*) *buccinator* (HOLMGREN) und *Phobetes atomator* (MÜLLER), im Text mit * markiert, sind Erstnachweise für die Türkei. Jede angeführte Art wurde einer zoogeografischen Bewertung unterzogen.

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Fig. 1: Map of the region investigated.